

Evaluation in an International Setting Measuring Success of S&T Programs

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Presentation Agenda

- Evaluation methodology and evaluation approaches, including levels of measuring results
- Highlights from TTO and BRHE Practicum reports
- Lessons learned and recommendations
- Problem areas that should be addressed in conducting evaluation in countries with transitional economies
- Need for model to measure success of technology transfer and commercialization programs in transitional countries



Are We Making an Impact?

- *If you don't know where you are going, how are you going to know when you get there?*

■ **Yogi Berra**

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"My question is: Are we making an impact?"



Designing an Evaluation Plan: A Five- Step Approach

- **Step I:** Clarifying Program Goals , Objectives and expected outcomes;
- **Step II:** Identifying evaluation stakeholders;
- **Step III:** Describing the rationale and the purpose of the evaluation;
- **Step IV:** Determining evaluation's key questions;
- **Step V:** Selecting an evaluation design.



Operating Assumptions

- All programs can be measured in some way
- Outcomes and results mean “change”
- Build upon the successful measurement you are already doing
- There are no perfect measures or evaluations
- Values from measures come from how they are used, not in the measure itself

■ *Reference: Policy and Evaluation Office,
U.S. Department of State, ECA, NAFSA Conference, 2004*



Evaluation Objectives

BRHE TTO Program

This evaluation study had three major objectives:

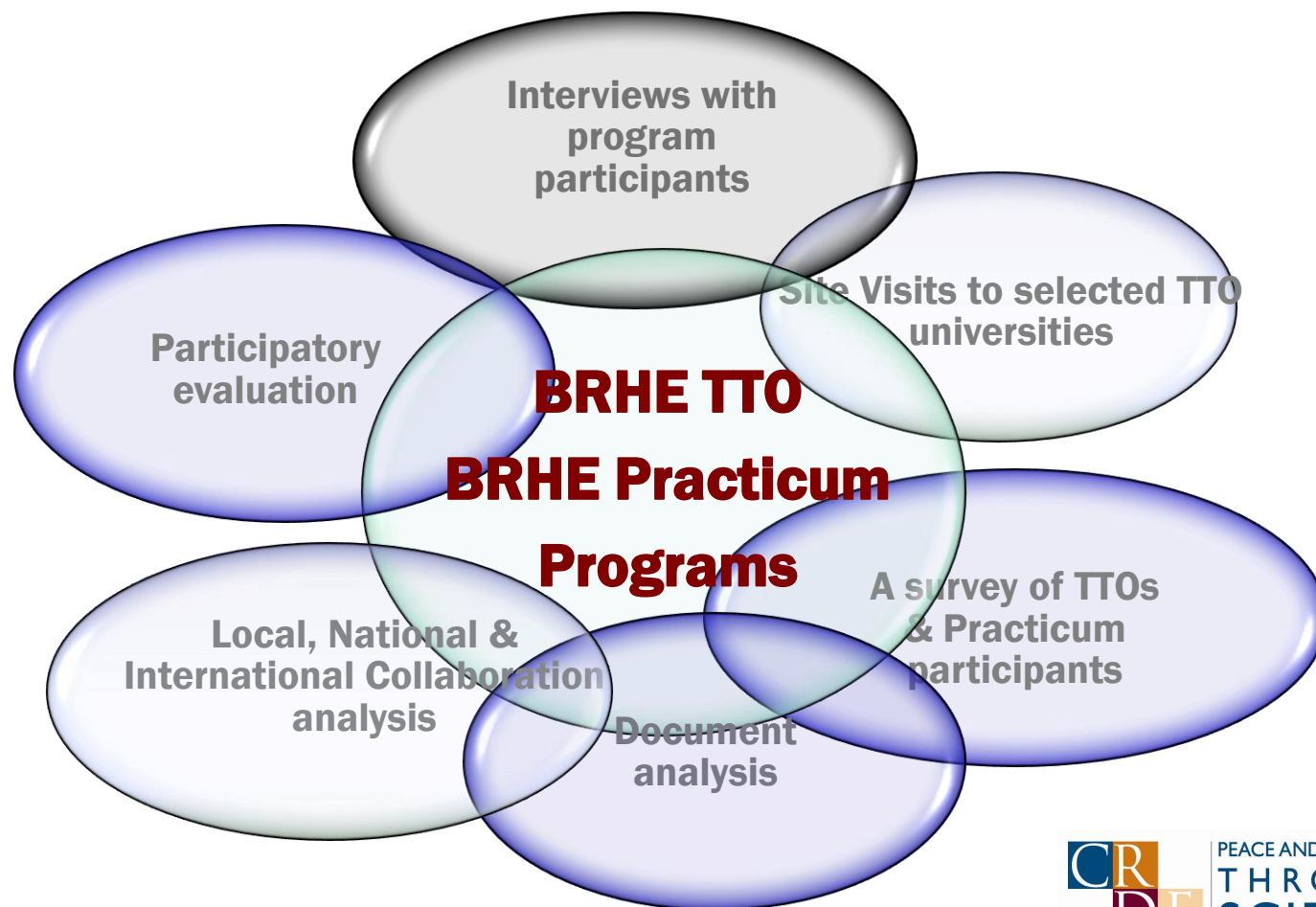
Objective I: To explore to what extent each TTO met the goals of the TTO Program outlined by CRDF Global and agreed upon with each hosting university;

Objective II: To assess benefits from local, national & international linkages and collaborations that TTOs established;

Objective III: To evaluate to what extent TTOs had served as a catalyst for transfer of knowledge and technologies.



Evaluation Design: A Mixed Method of Data Collection





BRHE TTOs – Core Metrics

- Number of TTO partnerships, functions that each TTO facilitated;
- The average distribution of the TTO income by sources;
- New jobs created as a result of TTO activities;
- Local, national and international linkages established;
- Inventions produced;
- Patent applications submitted;
- New companies started;
- Revenue generated;
- Success stories that can be credited to the TTOs.



BRHE TTOs – Summary of Findings

- **1,398** inventions;
- **1,199** patent applications in Russia;
- **647** new contacts with companies;
- **99** licensing or option agreements with companies inside and outside of Russia; and
- **130** new companies using inventions or technology developed by the universities.
- Generated approximately **\$2,549,432.70** from different sources



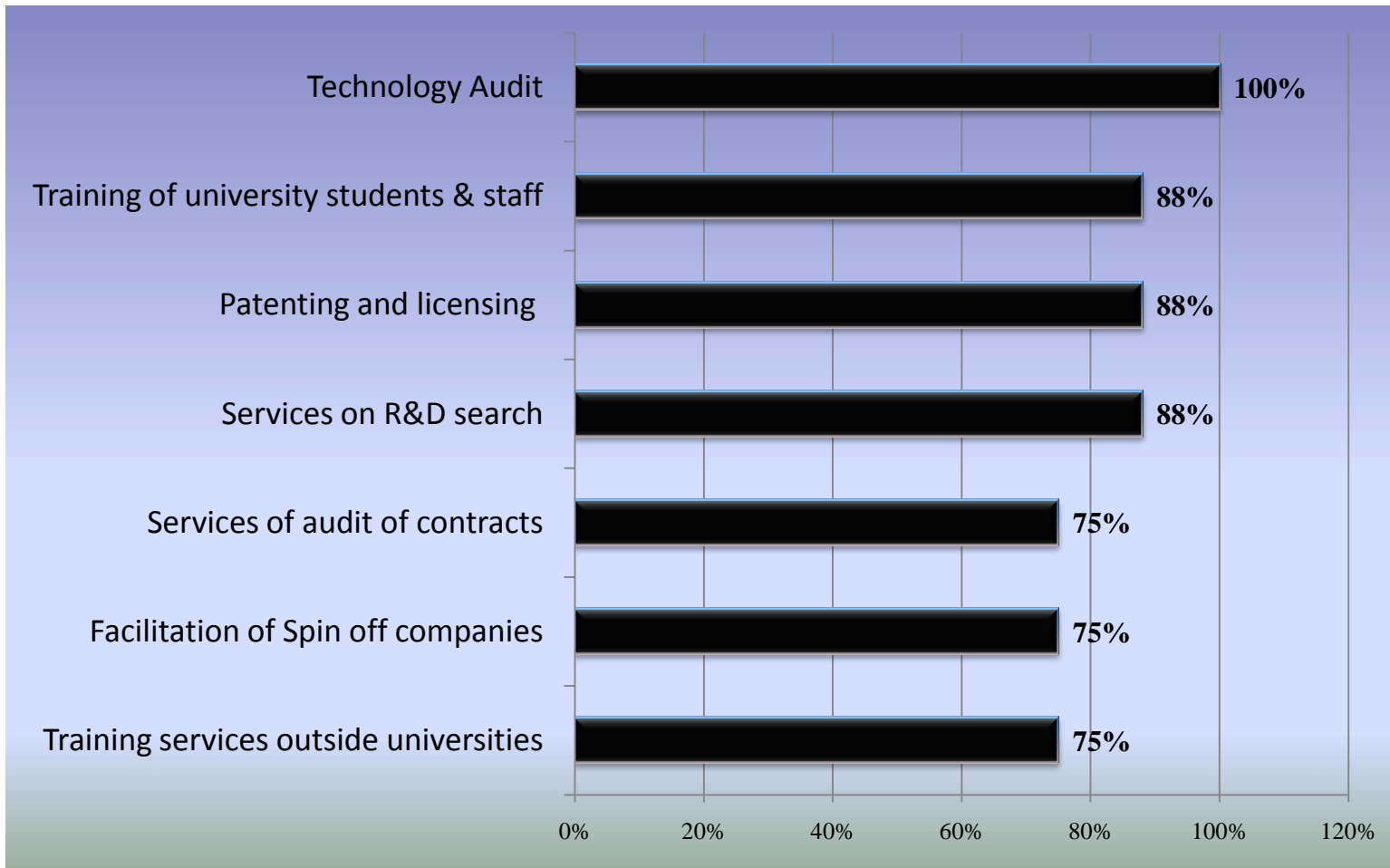
BRHE TTOs

Summary of Findings, Cont. 1

- **57** training workshops on technology transfer;
- **6,720 participants** were trained, including **3,765** (or 56 percent) young scientists and students.
- **157 full-time** and **210 part-time jobs**;
- *For example, Saint Petersburg State University (SPSU) TTO activities resulted in **100 full-time** and **70 part-time new jobs** in **22 new spin off** companies established due to the TTO activities in the region.*



BRHE TTOs' Functions Fulfilled





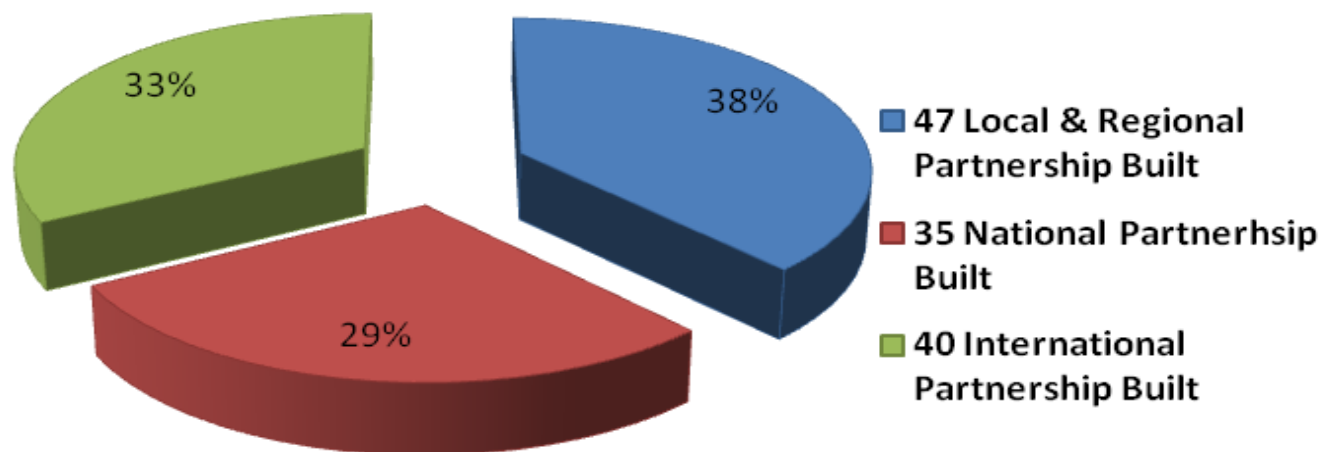
BRHE TTOs

Summary of Findings, Cont. 2

- **80** local, regional and national private companies and foundations
- Examples:
 - *Intel Corporation, JSC LUKOIL, GAZPROM TRANSGAZ*
- **40** foreign universities, private firms, associations and international organizations in *Norway, Germany, Finland; UK & Northern Ireland, Italy; Colorado State University (USA); and China.*

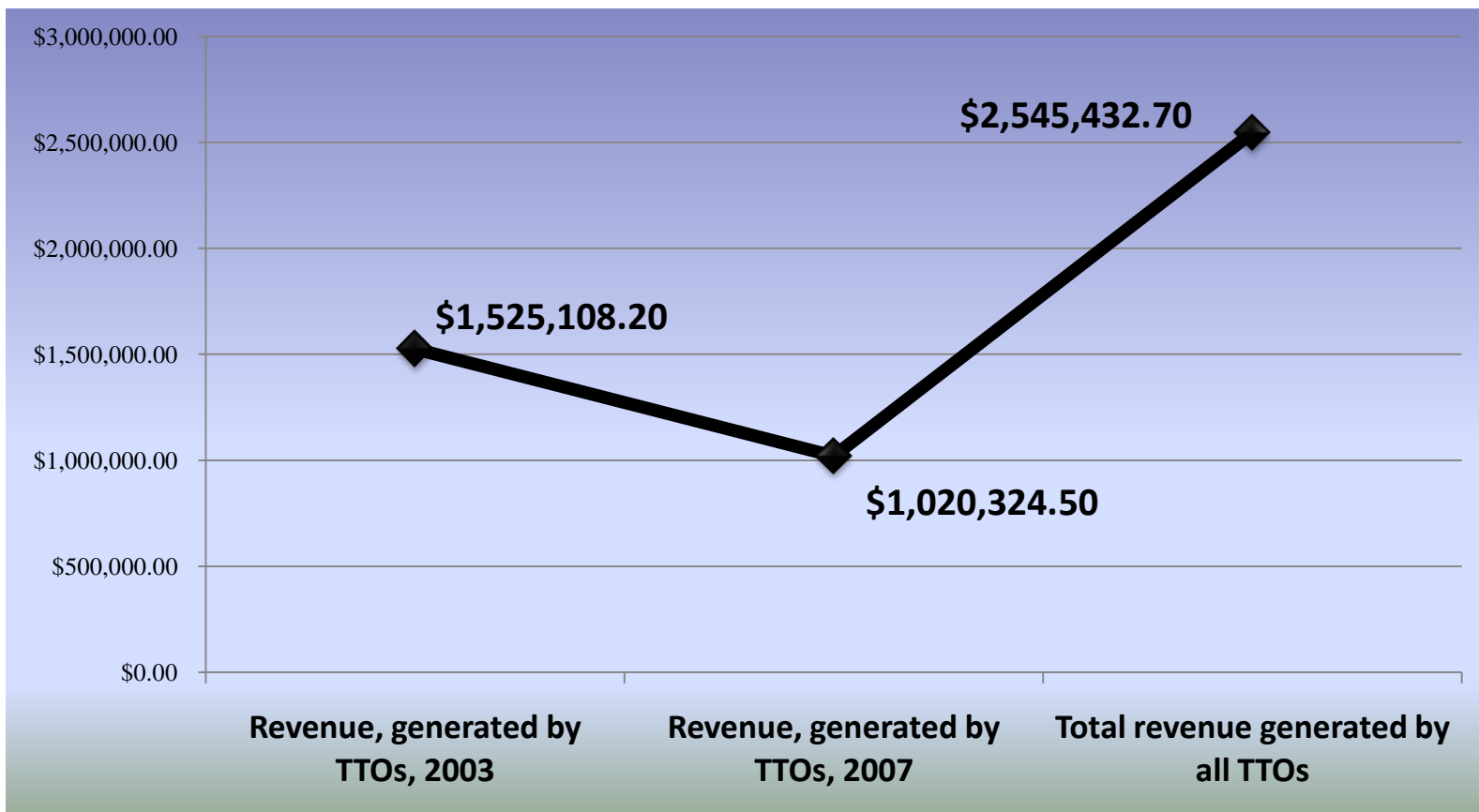


Partnerships at Local, National and International Levels





Revenue Generated by TTOs





Lessons Learned & Recommendations

- A model should be developed to measure TTO activities and contributions to technology transfer & commercialization in transitional countries;
- Legal & cultural context plus Russian mentality should be taken into consideration;
- Traditions of classical Russian universities & lack of infrastructure should always be taken into account when measuring success and the scope of effort.



BRHE Practicum:

Four Levels of Measuring Results

Level 1: Satisfaction: *professional goals and expectations met*

Level 2: Knowledge Gains *Did the program encourage subject-related knowledge gains? Does the program turn into a realistic plan of action for its use?*

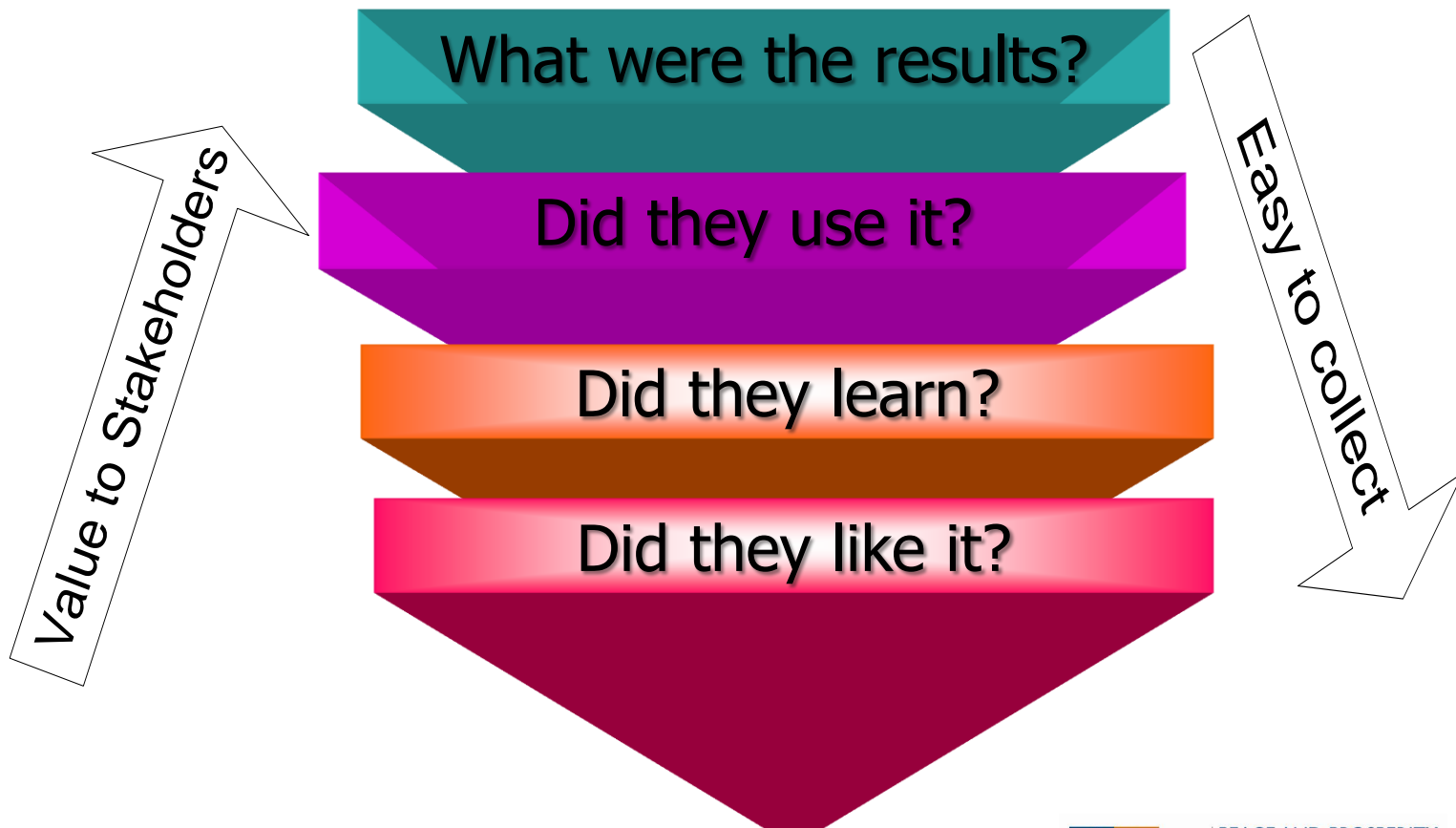
Level 3: Behavior Change: *major areas of new knowledge application, new approaches and attitudes*

Level 4: Institutional Change: *Change in policies, regulations, new curriculum, established network, national and international collaboration*



Levels of Measuring Success

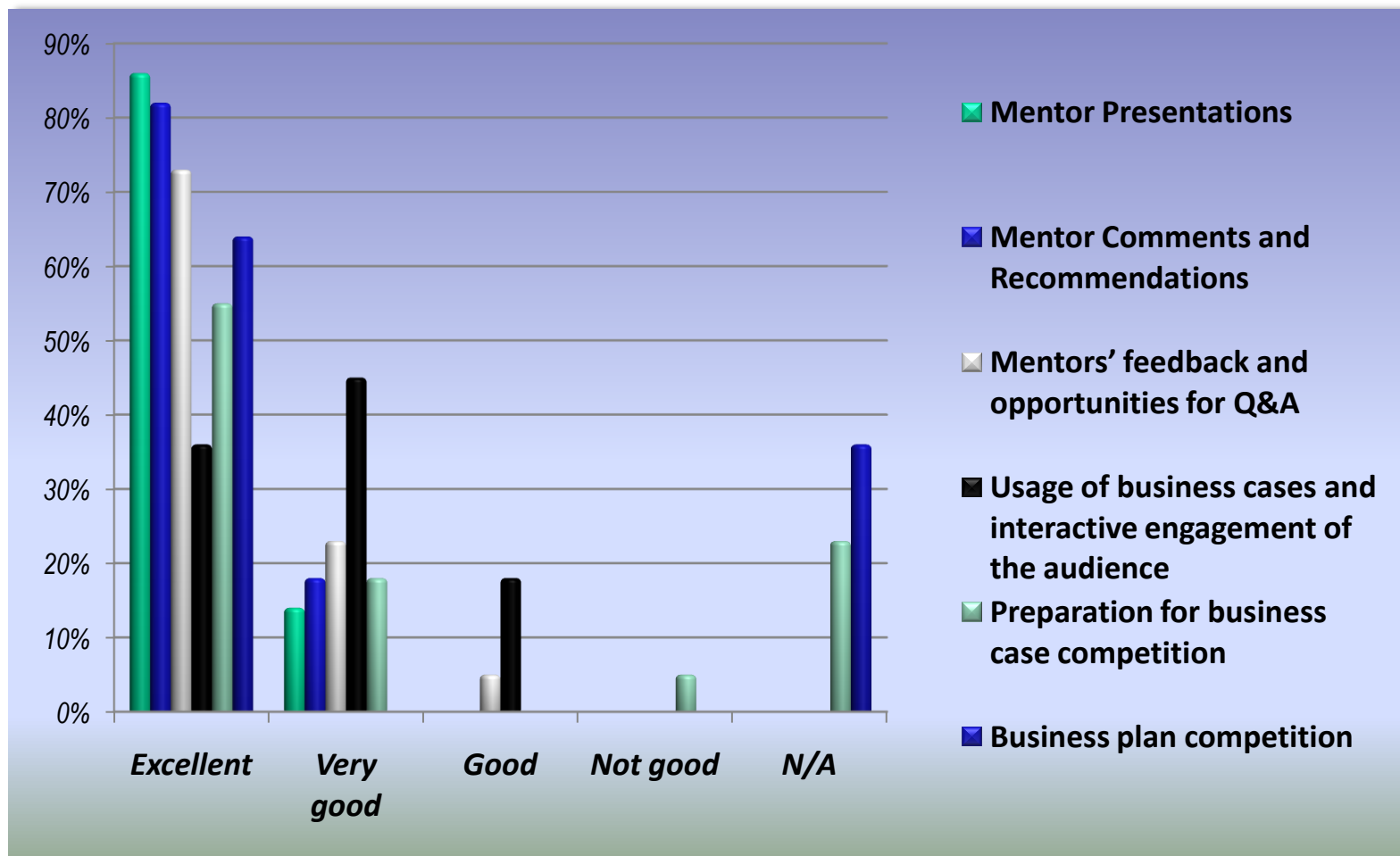
*Bureau of Educational and Cultural Affairs,
Policy and Evaluation Office, 2004*





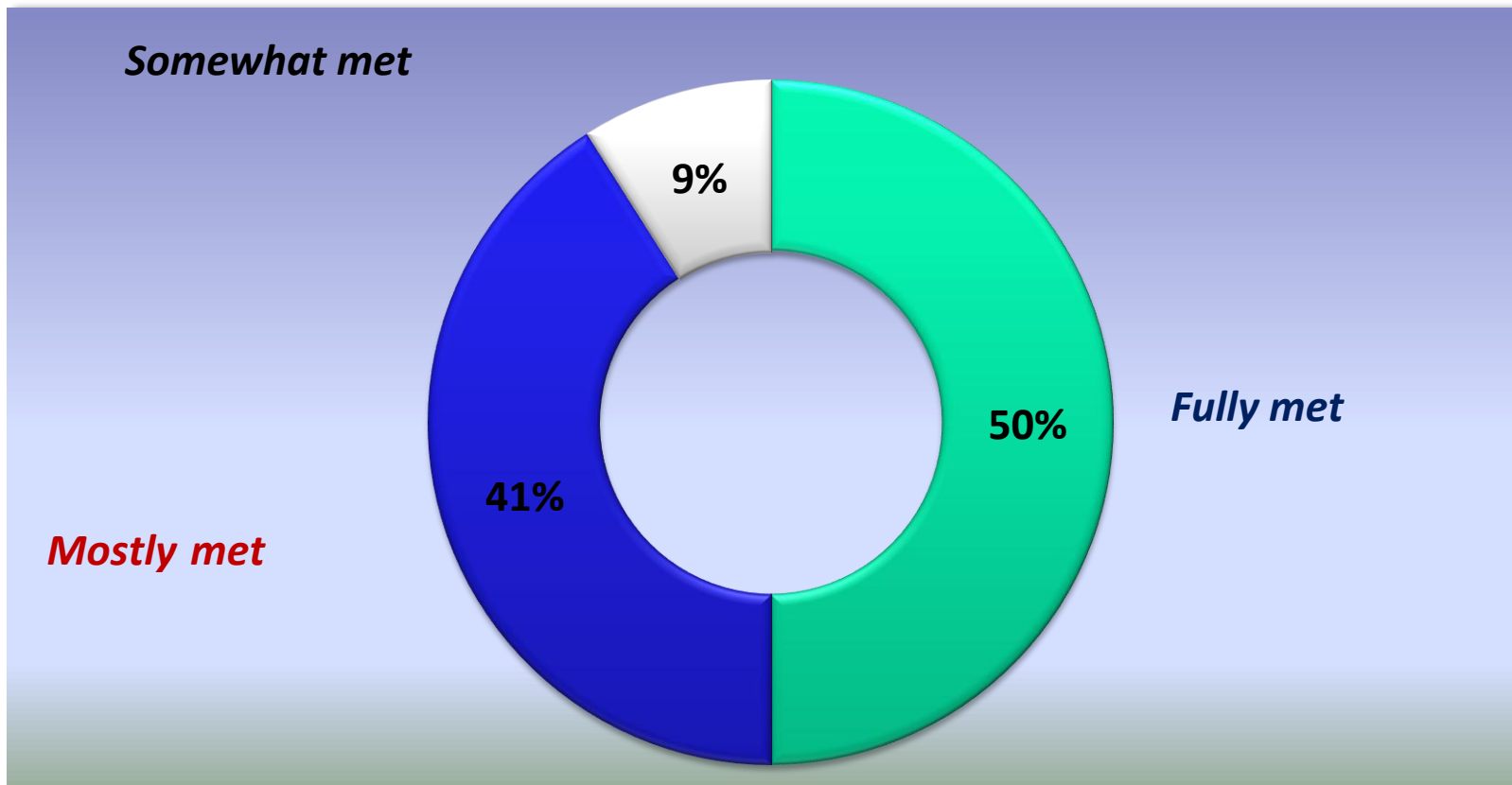
BRHE Practicum

Rating of the Sessions' Modules





Professional Goals and Expectations Met





Comments from Participants

- *–A very clear, well-structured delivery of information with concrete examples. Mentors' answers were also precise.*
- *–The information was very valuable. Prior to the practicum steps towards commercialization were not clear; now I have a clear picture and I know that this is real and I can realize it.*
- *–Lectures were wonderful; the U.S. mentors represented different experiences and that is why it was even more interesting; I wish we could have small group sessions, too.*
- *–I learned how to design a business concept correctly!*

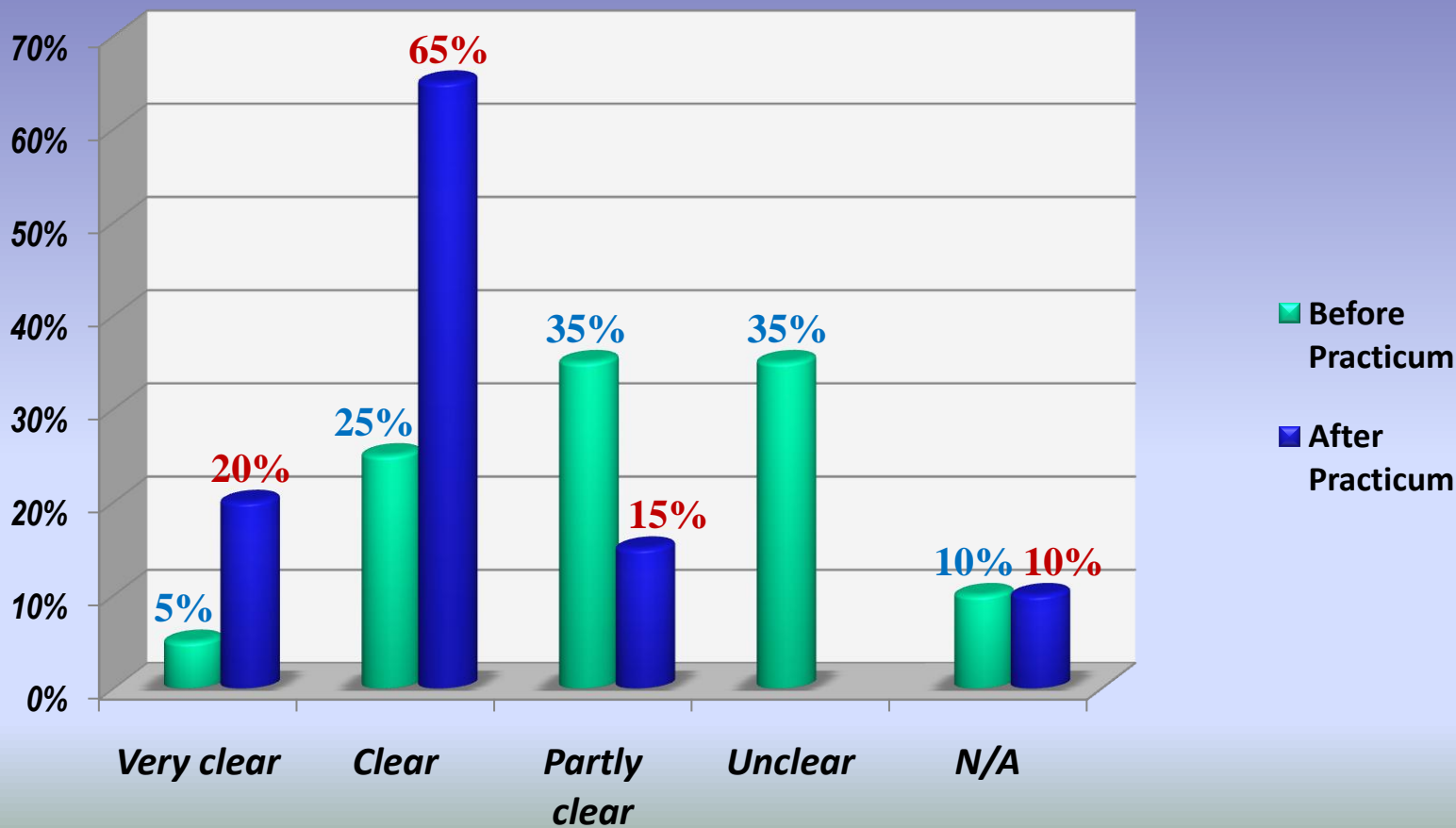


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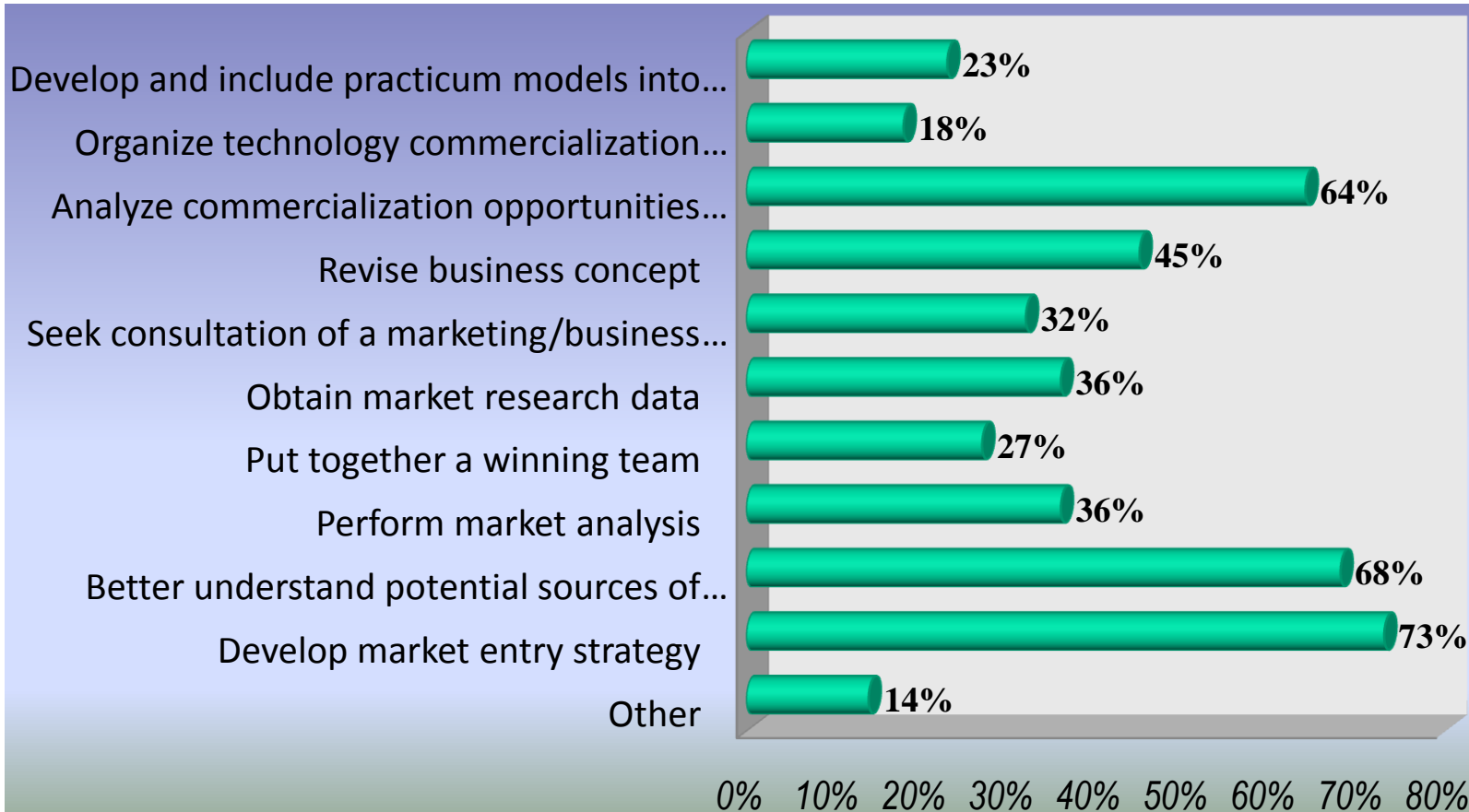


Knowledge of Technology Transfer Processes before & after Training





Anticipated Outcomes





Recommendations

Example: Interactive Methods of Teaching and Learning

- Practical exercises and simulation business games;
- Small group exercises and interactive seminars;
- Case studies of successful companies;
- Brainstorming sessions and round table discussions about best practices.



Recommendations, Cont.

From RF Ministry of Education and Science

- Small group discussions;
- Presentation with Q&A from mentors and participants;
- Lectures on Russian legislation, especially on patenting;
- Simulation games where students could play a role of investors in order to fully understand challenges of commercialization processes in a real life situation.



Conclusion

To ensure consistency & accuracy of data collection and analysis, the following steps should be undertaken:

- Reviewing core metrics in light of released studies on S&T by OECD, NSF, EU & other federal government agencies & international organizations;
- Developing new models & approaches of measuring results in S&T programs in transitional countries;
- Conducting follow-on evaluation studies, including a mixed methods of analysis – surveys, site visits, document analysis and in-person interviews to seek multiple lines of evidence.



Thank You for Your Attention!

Q&A

